



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,193	09/11/2003	Milton S. Meshirer	4224-101	9370
23448	7590	06/07/2004	EXAMINER	
INTELLECTUAL PROPERTY / TECHNOLOGY LAW			HAYES, BRET C	
PO BOX 14329			ART UNIT	
RESEARCH TRIANGLE PARK, NC 27709			PAPER NUMBER	

3644

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,193

Applicant(s)

MESHIRER, MILTON S.

Examiner

Bret C Hayes

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>09/29/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The use of trademarks been noted in this application. They should be capitalized wherever they appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

Claim Objections

2. Claim 4 is objected to because of the following informalities: lines 1 and 2, "a sealingly effective amount of a light-curable sealant composition" has previously been recited in the base claim and should be --the sealingly effective amount of the light-curable sealant composition--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claims 8, 15, 25, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 8 recites the limitation "the liquid sealant" in line 3. There is insufficient antecedent basis for this limitation in the claim.
6. Claim 15 recites the limitation "the curingly effective actinic radiation" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.
7. Claim 25 recites the limitation "the weight" in line 2. There is insufficient antecedent basis for this limitation in the claim.
8. Claims 27 and 28 recite the limitations "the tensile force" (2X) in lines 1 – 3, "the absence" in line 3, and "the light-cured sealant composition" in lines 3 and 4. There is insufficient antecedent basis for these limitations in the claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 2, 4 – 15, 24 and 29 – 31 are rejected under 35 U.S.C. § 103 as being unpatentable over US Patent No. 6,367,386 to Brede et al. (Brede) as cited by Applicant.
11. Re – claims 1, 29 and 31, Brede discloses the claimed invention including applying a capillary-active, acrylate-based adhesive sealing agent to a projectile/case in order to fully seal the gap arising in the inner mouth of the case, except for: (claim 1) applying a light-curable sealant composition and exposing that composition to curingly effective light; (claim 29) forming a light-cured sealant coating at a projectile/casing interface; and (claim 31) a

projectile/casing interface sealed by a light-cured composition. It would have been obvious to one having ordinary skill in the art at the time the invention was made to (claim 1) apply a light-curable sealant composition and expose that composition to curingly effective light; (claim 29) form a light-cured sealant coating at a projectile/casing interface; and (claim 31) have a projectile/casing interface sealed by a light-cured composition, since the equivalence of the capillary-active, acrylate-based adhesive sealing agent disclosed by Brede and light-curable sealant compositions for their use in the sealing art and the selection of any known equivalents to capillary-active, acrylate-based adhesive sealing agents would be within the level of ordinary skill in the art.

12. Re – claim 2, Brede discloses the claimed invention as applied above except for the composition being devoid of anaerobic sealing components. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select a composition being devoid of anaerobic sealing components, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

13. Re – claim 4, Brede discloses the claimed invention including applying a sealant in a controlled manner except for the applying explicitly involving relative motion of the cartridge and an applicator dispensing the sealant composition. It would be inherent in Brede to involve relative motion of the cartridge and an applicator, since the absence of relative motion would be impossible. In other words, to accomplish the act of applying sealant composition to a cartridge, either the cartridge or an applicator, or both, will have to move at some point in time.

14. Re – claims 5 and 6, Brede as applied to claim 4 above discloses the claimed invention except for the cartridge being motively translated in relation to the applicator and vice versa. It would have been obvious to one having ordinary skill in the art at the time the invention was made to motively translate either the cartridge or the applicator in relation to the other, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

15. Re – claims 7 – 9, Brede as applied to claim 4 above discloses the claimed invention except for (claim 7) an application device selected from the so-consisting group; (claim 8) a liquid-fed transfer device selected from the so-consisting group; and (claim 9) the applicator comprising a hypodermic-type needle dispenser in combination with a wiper element. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have (claim 7) an application device selected from the so-consisting group; (claim 8) a liquid-fed transfer device selected from the so-consisting group; and (claim 9) the applicator comprise a hypodermic-type needle dispenser in combination with a wiper element, since it was known in the applicator art to use these devices.

16. Re –claims 10 and 11, Brede discloses the invention as claimed as applied above, except for the curingly effective light comprising light selected from the group consisting of visible light, ultraviolet light, uv-visible light, infrared light and microwave radiation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the curingly effective light comprise light selected from the group consisting of visible light, ultraviolet light, uv-visible light, infrared light and microwave radiation, since it was known in the light-curing art that polymerization can occur under these types of radiation.

17. Re – claim 12, Brede discloses the claimed invention as applied above, except for the wavelength of the ultraviolet light being in a range of from about 220 nm to 375 nm. Since these specified wavelengths fall under the definition of ultraviolet, the use of these wavelengths would have been obvious to one of ordinary skill in the art at the time the invention was made.

18. Re – claims 13 and 14, Brede discloses the invention as claimed as applied above, except for a light-generating component selected from the so-consisting group. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a light-generating component so selected, since the selection of any ultraviolet radiation-producing component for the purpose of producing ultraviolet radiation would be inherent.

19. Re – claim 15, Brede discloses the claimed invention as applied above, except for the sealant composition after exposure to the curingly effective light not fluorescing. It would appear that this is the norm within the prior art. The only references to any light-curable compositions fluorescing is by way of the addition of a pigment or dye, which itself does the fluorescing – see US Patent Nos.: 6,460,464 B1 to Attarwala, col. 3, line 54; and 6,284,813 B1 to Leppard et al., col. 17, line 54, for example. If fluorescence after actinic radiation exposure were the default state of the composition, one would be lead to believe that it would at least be given mention in the prior art as being so. Since the prior art teaches the addition of pigments and/or dyes to create fluorescence, it would appear that such is not the case and it would then be inherent that the composition would not fluoresce after exposure to actinic radiation:

20. Re – claim 24, Brede discloses the claimed invention as applied above including the sealant comprising “the addition of an indicator” beginning at col. 2, line 19, which a dye would inherently be considered to be.

Art Unit: 3644

21. Re – claim 30, Brede discloses the claimed invention as applied to the claims above.
22. Claim 3 is rejected under 35 U.S.C. § 103 as being unpatentable over Brede in view of US Patent No. 4,359,370 to De La Mare et al. (De La Mare).
23. Brede discloses the invention substantially as claimed as applied above. However, Brede does not disclose the light-curable sealant composition being light-cured by exposure to the curingly effective light for an exposure time in a range of from about 0.01 to 0.5 seconds.
24. De La Mare teaches exposure time in a range of from about 0.001 seconds to about 2.5 seconds, set forth at col. 8, line 59, in the same field of endeavor for the purpose of radiating with UV.
25. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Brede to include the exposure time as taught by De La Mare in order to cure UV-curable sealant compositions.
26. Claims 16 – 23, 25 – 28 and 30 are rejected under 35 U.S.C. § 103 as being unpatentable over Brede in view of US Patent No. 6,284,813 B1 to Leppard et al. (Leppard), previously cited above.
27. Re – claim 16, Brede discloses the claimed invention except for the light-curable sealant composition comprising a photocurable resin selected from the group consisting of unsaturated polyesters, epoxies, (meth)acrylates, urethane (meth)acrylates, (meth)acrylic ester monomers, oligoester acrylate-based compounds, epoxy acrylate-based compounds, polyimide-based compounds, aminoalkyd-based compounds, and vinyl ether-based compounds.
28. Leppard teaches a light-curable sealant composition comprising a photocurable resin selected from the group consisting of unsaturated polyesters – see col. 12, line 23, for example,

epoxies – see col. 12, line 20, for example, (meth)acrylates – see col. 12, line 1, for example, urethane (meth)acrylates – see col. 18, line 30, for example, [note: Leppard teaches *poly*-urethane methacrylates, but the use of polyurethane for urethane and vice versa is predominately interchangeable in the art], (meth)acrylic ester monomers – see col. 12, lines 36 – 48, for example, oligoester acrylate-based compounds – see col. 13, line 30, for example, epoxy acrylate-based compounds – see col. 12, line 20, for example, polyimide-based compounds – see col. 19, line 59, for example, aminoalkyd-based compounds – see col. 12, line 1, for example, and vinyl ether-based compounds – see col. 12, line 7, for example, in the same field of endeavor for the purpose of making a photoinitiator and photoinitiator mixtures capable of curing photopolymerizable compositions, set forth at col. 1, line 15.

29. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the light-curable sealant composition comprising a photocurable resin selected from the group consisting of unsaturated polyesters, epoxies, (meth)acrylates, urethane (meth)acrylates, (meth)acrylic ester monomers, oligoester acrylate-based compounds, epoxy acrylate-based compounds, polyimide-based compounds, aminoalkyd-based compounds, and vinyl ether-based compounds as taught by Leppard in order to make a photoinitiator and photoinitiator mixtures capable of curing photopolymerizable compositions efficiently.

30. Re – claim 17, Brede discloses the claimed invention except for the light-curable sealant composition comprising a photocurable resin selected from the group consisting of bisphenol epichlorohydrin epoxy resins, acrylic resins, urethane acrylate resins, acrylated polyester resins, and cycloaliphatic epoxides.

Art Unit: 3644

31. Leppard further teaches light-curable sealant composition comprising a photocurable resin selected from the group consisting of bisphenol epichlorohydrin epoxy resins – see col. 12, lines 13 and 54, for example, acrylic resins – see col. 12, lines 36 – 48, for example, urethane acrylate resins – see col. 18, line 42, for example, acrylated polyester resins – see col. 26, line 26, for example, and cycloaliphatic epoxides – see col. 12, line 50, for example, in the same field of endeavor for the same purpose indicated above.

32. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the light-curable sealant composition comprising a photocurable resin selected from the group consisting of bisphenol epichlorohydrin epoxy resins, acrylic resins, urethane acrylate resins, acrylated polyester resins, and cycloaliphatic epoxides for the same reason indicated above.

33. Re – claim 18, Brede discloses the claimed invention except for the light-curable sealant composition comprising a photocurable resin and a photoinitiator.

34. Leppard further teaches the composition comprising a photocurable resin and a photoinitiator, set forth throughout and at col. 20 lines 36 – 48, in the same field of endeavor for the purpose of coating.

35. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the composition comprising a photocurable resin and a photoinitiator as taught by Leppard in order to coat.

36. Re – claims 19 – 21, Brede discloses the claimed invention except for the light-curable sealant composition comprising a formulation selected from the group consisting of free-radical curable acrylate resin-based formulations, and cationically curable epoxy-based formulations.

37. Leppard further teaches a light-curable sealant composition comprising a formulation selected from the group consisting of free-radical curable acrylate resin-based formulations, and cationically curable epoxy-based formulations, as set forth at col. 18, line 64, for example, in the same field of endeavor for the purpose indicated above.

38. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Brede to include the light-curable sealant composition comprising a formulation selected from the group consisting of free-radical curable acrylate resin-based formulations, and cationically curable epoxy-based formulations as taught by Leppard for the reason indicated above.

39. Re – claim 22, Brede discloses the claimed invention except for the light-curable sealant composition comprising a monomeric diluent.

40. Leppard further teaches the light-curable sealant composition comprising a monomeric diluent, as set forth at col. 19, line 52, in the same field of endeavor for the purpose indicated above.

41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the monomeric diluent as taught by Leppard for the reason indicated above.

42. Re – claim 23, Brede discloses the claimed invention except for the light-curable sealant composition comprising a neat formulation of resin and photoinitiator.

43. Leppard further teaches the light-curable sealant composition comprising a neat formulation of resin and photoinitiator, as set forth at col. 19, line 63, in the same field of endeavor for the purpose indicated above.

Art Unit: 3644

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the neat formulation of resin and photoinitiator as taught by Leppard for the reason indicated above.

45. Re – claim 25, Brede discloses the claimed invention except for the light-curable sealant composition comprising a photoinitiator in a concentration not exceeding 5% by weight.

46. Leppard further teaches the light-curable sealant composition comprising a photoinitiator in a concentration not exceeding 5% by weight*, as set forth at col. 26, line 11, in the same field of endeavor for the purpose indicated above. *Leppard teaches the photoinitiator in a concentration not exceeding 5%, but does not explicitly state “by weight” at that citation. However, further on, Leppard teaches “by weight” as set forth at col. 29, line 15.

47. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Brede to include the photoinitiator in a concentration not exceeding 5% by weight as taught by Leppard for the reason indicated above.

48. Re – claims 27 and 28, Brede discloses the claimed invention except for a tensile force required to separate the projectile from the casing being no more than 10% or 5% greater than a tensile force required to separate the projectile from the casing in an absence of light-curable sealant composition.

49. It would have been obvious to one having ordinary skill in the art at the time the invention was made to require a tensile force to separate the projectile from the casing be no more than 10% or 5% greater than a tensile force required to separate the projectile from the casing in an absence of light-curable sealant composition, since it was known in the projectile art

that separation tensile force must remain below a certain level in order to prevent backfiring of the ammunition.

50. Claim 26 is rejected under 35 U.S.C. § 103 as being unpatentable over Brede in view of US Patent No. 6,017,973 to Tamura et al. (Tamura).

51. Brede discloses the claimed invention except for the light-curable sealant composition having a viscosity in a range of from about 75 to 1000 centipoise (cps) at 25° C.

52. Tamura teaches a light-curable composition having a viscosity in a range of around 100 to 100,000 centipoise (cps) at 25° C, set forth at col. 14, line 2, in the same field of endeavor for the purpose of making a photocurable resin composition for the purpose of adjusting the photocurable resin to its application or mode of use.

53. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Brede to include the range of from about 75 to 1000 centipoise (cps) at 25° C as taught by Tamura in order to adjust the photocurable resin to its application or mode of use.

54. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the range of from about 75 to 1000 centipoise (cps) at 25° C, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Also, *In re Peterson*, 65 USPQ2d 1379.

Art Unit: 3644


Conclusion

Any inquiry concerning this communication should be directed to Bret Hayes at telephone number (703) 306 – 0553. The examiner can normally be reached Monday through Friday from 5:30 am to 3:00 pm, Eastern Standard Time.

If attempts to contact the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Jordan, can be reached at (703) 306 – 4159. The fax number is (703) 872 – 9306.

bh

5/28/04


CHARLES T. JORDAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600